

Work Order ID 85318

June-05-12 3:37:11 PM

85318

Page 1

Item ID: D407-667-205

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Start Date: 05/06/2012 Start Qty: 1.00 ***1***Required Date: 19/06/2012 Req'd Qty: 1.00 ***1***

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: MLJDate: 12/06/05 Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D407-667-245	Rev F/DEO
--------------	-----------

100

100

DC

Document Control

DOCUMENT CONTROL

0.00

(DAS)
16
9-09
CRG 008

MLJ 12-8-1

110

110

Packaging

Packaging

Pick Kit

0.00

Packaging

Memo

0.00

DP 12-7-17

120

120

CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - CROSSTUBES

0.00

Memo

0.00

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio 21

DP 12-7-17

B85318 D407-667-205 X

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\FORMS\Quality Assurance\approved QAWCRWO RevE

Work Order ID 85318

June-05-12 3:37:11 PM

Item ID: D407-667-205

Accept

85318

Revision ID:

Item Name: Crosstube Aft

Start Date: 05/06/2012 Start Qty: 1.00 *1*

Required Date: 19/06/2012 Req'd Qty: 1.00 *1*

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

130

130

QC

Quality Control

Operation
Description

QC15- Crosstube Dimensional Check

Set Up/
Run Hours

0.00

QAS
7/10
S. S.

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Memo

0.00

17/07/17

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 85318

June-05-12 3:37:11 PM

85318

Page 3 of 3

Item ID: D407-667-205

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Start Date: 05/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 19/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID
140

Operation
Description
Crosstubes

Set Up/
Run Hours
0.00

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

Crosstubes

Crosstubes

Memo 0.00

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245

6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes.

7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes.

8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

9- Scribe tube to identify on the inner chamfer in the cuff D# and B#

10-Deburr & Inspect for surface damage. Repair damage within limits as per

Rm - 12-7-18

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____	DISPOSITION	AGAINST DEPARTMENT/PROCESS					
Part No. _____	Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Other <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/>		
NCR No. _____							

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General		
Bending Passes Below Min Centre Not Concentric to O/S Cracks Crushed/Crimp at Bending Inspection Strip in Tube Other Positioned Wrong Ripples on Inner Bend Torque Waves in Extrusion Turning Sequence Wave/Twist in Tube	Breaking <input type="checkbox"/> Missing <input type="checkbox"/> Size/Length <input type="checkbox"/> Spinning <input type="checkbox"/> Threading <input type="checkbox"/> Wrong <input type="checkbox"/>	Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Documentation/Data <input type="checkbox"/> Finish <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Inspection Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Jigs/Fixtures/Tooling <input type="checkbox"/> Kit Incorrect <input type="checkbox"/> Kit Missing <input type="checkbox"/>	Maintenance <input type="checkbox"/> Mislabelled <input type="checkbox"/> Off-Set <input type="checkbox"/> Orientation Misread <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Lost <input type="checkbox"/> Part Moved <input type="checkbox"/> Raw Material <input type="checkbox"/>	Set-up <input type="checkbox"/> Supplier <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other <input type="checkbox"/>
Drill Holes				
	Misaligned <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Undersized <input type="checkbox"/> Too Many <input type="checkbox"/>			

Work Order ID 85318

June-05-12 3:37:11 PM

Item ID: D407-667-205

Accept

85318

Revision ID:

Item Name: Crosstube Aft

Start Date: 05/06/2012 Start Qty: 1.00 ***1***Required Date: 19/06/2012 Req'd Qty: 1.00 ***1***

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:		Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Dwg D407-667-245									
150 *150* HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion Memo	0.00 0.00	7/0.17504 Af	12-7-20					CL 12/07/20 ①
160 *160* QC Quality Control	QC3- Inspect Part Finish Memo	0.00							W 12/07/20
170 *170* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00							W 12/07/20

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order:	DISPOSITION			AGAINST DEPARTMENT/PROCESS					
Part No.	Rework	Scrap	Use-as-is	Skid-tube	Machining	Thermoforming	Crosstube	Prod. Eng. Coor.	Engineering
NCR No.	Work Order Update			Large Fab			Small Fab	Rec/Store/Packaging	Quality
							Finishing	Supplier	
							Composite	Other	

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
Bending Passes Below Min	Breaking	Burrs	Maintenance
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled
Cracks	Size/Length	Cut Too Short	Off-Set
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread
Inspection Strip in Tube	Threading	Finish	Out of Calibration
Other	Wrong	Inspection Incomplete	Out of Sequence
Positioned Wrong		Inspection Unqualified	Outside Dimensions
Ripples on Inner Bend		Instructions Incomplete/Unclear	Over/Under tolerance
Torque Waves in Extrusion	Misaligned	Jigs/Fixtures/Tooling	Part Lost
Turning Sequence	Ovalized	Kit Incorrect	Part Moved
Wave/Twist in Tube	Over/Undersized	Kit Missing	Raw Material
	Too Many		Other

Work Order ID 85318

June-05-12 3:37:11 PM

Item ID: D407-667-205

Accept

85318

Revision ID:

Item Name: Crosstube Aft

Start Date: 05/06/2012 **Start Qty:** 1.00

1

Required Date: 19/06/2012 **Req'd Qty:** 1.00

1

N900040100

Setup Start

NS1

Stop

NS2

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
						Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Outsource2	Outsource process - NDT per QSI038 4.1	0.00							
Outsource process - NDT	Memo Liquid Penetrant Inspection as per QSI 0380 Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00	N/A						

190 *190* Packaging Packaging	Packaging	0.00							
	Memo	0.00							
	Ensure copy of NDT results attached to work order.								

200 *200* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00							

PC 12/1/2012
W 12-01-23

Page 5

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____	DISPOSITION	AGAINST DEPARTMENT/PROCESS					
Part No. _____	Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Other <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/>		
NCR No. _____							

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
Bending Passes Below Min	Breaking <input type="checkbox"/>	Burrs <input type="checkbox"/>	Maintenance <input type="checkbox"/>
Centre Not Concentric to O/S	Missing <input type="checkbox"/>	Contamination <input type="checkbox"/>	Mislabeled <input type="checkbox"/>
Cracks <input type="checkbox"/>	Size/Length <input type="checkbox"/>	Cut Too Short <input type="checkbox"/>	Off-Set <input type="checkbox"/>
Crushed/Crimp at Bending	Spinning <input type="checkbox"/>	Documentation/Data <input type="checkbox"/>	Orientation Misread <input type="checkbox"/>
Inspection Strip in Tube	Threading <input type="checkbox"/>	Finish <input type="checkbox"/>	Out of Calibration <input type="checkbox"/>
Other	Wrong <input type="checkbox"/>	Inspection Incomplete <input type="checkbox"/>	Out of Sequence <input type="checkbox"/>
Positioned Wrong		Inspection Unqualified <input type="checkbox"/>	Outside Dimensions <input type="checkbox"/>
Ripples on Inner Bend		Instructions Incomplete/Unclear <input type="checkbox"/>	Over/Under tolerance <input type="checkbox"/>
Torque Waves in Extrusion	Misaligned <input type="checkbox"/>	Jigs/Fixtures/Tooling <input type="checkbox"/>	Part Lost <input type="checkbox"/>
Turning Sequence	Ovalized <input type="checkbox"/>	Kit Incorrect <input type="checkbox"/>	Part Moved <input type="checkbox"/>
Wave/Twist in Tube	Over/Undersized <input type="checkbox"/>	Kit Missing <input type="checkbox"/>	Raw Material <input type="checkbox"/>
	Too Many <input type="checkbox"/>		Other <input type="checkbox"/>

Work Order ID 85318

June-05-12 3:37:11 PM

85318

Page 6

Item ID: D407-667-205

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2Start Date: 05/06/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 19/06/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:		Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
210	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	***Mask underside of crosstube as shown***								

1-Prime inside and outside crosstube as per DEO D407-667-245 and QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME: 121334
 Start Time: 8:00 > 12-07-23 ①
 Finish Time: 9:00

PAINT: 122381
 Start Time: 6:00 > 12-7-24
 Finish Time: 7:00

220

QC14- Inspect Spray Paint

0.00

220

QC

Quality Control

Memo
 Then, Wrap in plastic bag to protect from scratches

16
 17/07/24

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order:	DISPOSITION				AGAINST DEPARTMENT/PROCESS			
Part No.:	Rework	Skid-tube	Crosstube	Prod. Eng. Coor.	Engineering			
NCR No.:	Scrap	Machining	Small Fab	Rec/Store/Packaging	Quality			
	Use-as-is	Thermoforming	Finishing	Supplier				
	Work Order Update	Large Fab	Composite	Other				

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General		
Bending Passes Below Min	Breaking	Burrs	Maintenance	Set-up
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled	Supplier
Cracks	Size/Length	Cut Too Short	Off-Set	Temperature/Cure
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread	Weld
Inspection Strip in Tube	Threading	Finish	Out of Calibration	Wrong Stock Pulled
Other	Wrong	Inspection Incomplete	Out of Sequence	
Positioned Wrong		Inspection Unqualified	Outside Dimensions	
Ripples on Inner Bend		Instructions Incomplete/Unclear	Over/Under tolerance	
Torque Waves in Extrusion		Jigs/Fixtures/Tooling	Part Lost	
Turning Sequence		Kit Incorrect	Part Moved	
Wave/Twist in Tube		Kit Missing	Raw Material	
	Drill Holes			
	Misaligned			
	Ovalized			
	Over/Undersized			
	Too Many			

Work Order ID 85318

June-05-12 3:37:11 PM

85318

Page 7

Item ID: D407-667-205

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2Start Date: 05/06/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 19/06/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:		Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	Crosstubes	0.00							
230 Crosstubes	Memo	0.00							
Crosstubes	1- Install chafing shield as per DEO D407-667-245. Top holes should be facing up. A/R Proseal 890 Batch: <u>122441</u> EXP: <u>1/13</u>								<u>Af</u> 12-7-28
	2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe								
	3-Install support with Scotch-Weld DP460 and install clamps as per DEO Dwg D407-667-245 using installaiton jig DT9025. Torque clampsas per dwg A/R Scotch-Weld DP460 Batch: <u>121368</u> EXP: <u>13-4-13</u>								<u>7W</u> 12-07-27
	4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.								
240	QC5- Inspect part completeness to step on W/O	0.00							
240 QC	Memo	0.00							
Quality Control									<u>Q</u> 12-07-31 <u>Q</u>

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order:	DISPOSITION				AGAINST DEPARTMENT/PROCESS				
Part No. _____	Rework	<input type="checkbox"/>	Skid-tube	<input type="checkbox"/>	Crosstube	<input type="checkbox"/>	Prod. Eng. Coor.	<input type="checkbox"/>	Engineering
NCR No. _____	Scrap	<input type="checkbox"/>	Machining	<input type="checkbox"/>	Small Fab	<input type="checkbox"/>	Rec/Store/Packaging	<input type="checkbox"/>	Quality
	Use-as-is	<input type="checkbox"/>	Thermoforming	<input type="checkbox"/>	Finishing	<input type="checkbox"/>	Supplier	<input type="checkbox"/>	
	Work Order Update	<input type="checkbox"/>	Large Fab	<input type="checkbox"/>	Composite	<input type="checkbox"/>	Other	<input type="checkbox"/>	

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
Bending Passes Below Min	Breaking	Burrs	Maintenance
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled
Cracks	Size/Length	Cut Too Short	Off-Set
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread
Inspection Strip in Tube	Threading	Finish	Out of Calibration
Other	Wrong	Inspection Incomplete	Out of Sequence
Positioned Wrong		Inspection Unqualified	Outside Dimensions
Ripples on Inner Bend		Instructions Incomplete/Unclear	Over/Under tolerance
Torque Waves in Extrusion	Drill Holes	Jigs/Fixtures/Tooling	Part Lost
Turning Sequence	Misaligned	Kit Incorrect	Part Moved
Wave/Twist in Tube	Ovalized	Kit Missing	Raw Material
	Over/Undersized		
	Too Many		
			Set-up
			Supplier
			Temperature/Cure
			Weld
			Wrong Stock Pulled
			Other

Work Order ID 85318

June-05-12 3:37:11 PM

85318

Page 8

Item ID: D407-667-205

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2Start Date: 05/06/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 19/06/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

250

250

Packaging

Packaging

Memo

0.00

C12/8/10 C

260

260

QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

*DAS
16
8-83 / 17/08/10*

270

270

Packaging

Packaging

0.00

Memo

0.00

Identify and in kanban rack
Location: _____*C12/8/10 C*

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____	DISPOSITION	AGAINST DEPARTMENT/PROCESS					
Part No. _____	Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Prod. Eng. Coor. Rec/Store/Packaging Supplier Other	Engineering Quality		
NCR No. _____							

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
Bending Passes Below Min	Breaking	Burrs	Maintenance
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled
Cracks	Size/Length	Cut Too Short	Off-Set
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread
Inspection Strip in Tube	Threading	Finish	Out of Calibration
Other	Wrong	Inspection Incomplete	Out of Sequence
Positioned Wrong		Inspection Unqualified	Outside Dimensions
Ripples on Inner Bend		Instructions Incomplete/Unclear	Over/Under tolerance
Torque Waves in Extrusion	Drill Holes	Jigs/Fixtures/Tooling	Part Lost
Turning Sequence	Misaligned	Kit Incorrect	Part Moved
Wave/Twist in Tube	Ovalized	Kit Missing	Raw Material
	Over/Undersized		
	Too Many		

Work Order ID 85318

June-05-12 3:37:11 PM

85318

Page 9

Item ID: D407-667-205

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 05/06/2012 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 19/06/2012 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

**Sequence ID/
Work Center ID**

**Operation
Description**

**Set Up/
Run Hours**

Tool ID

Tool #

**Plan
Code**

**Accept
Qty**

**Reject
Qty**

**Reject
Number**

**Insp.
Stamp**

280

QC21- Final Inspection - Work Order Release

0.00

12/18/12

280

QC

Quality Control

Memo

0.00

MLJ 17/08/01

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: Date:

QA Closed: _____ Date: _____

Picklist Print

June-05-12 3:37:15 PM

Work Order ID: 85318

Parent Item: D407-667-205

Parent Item Name: Crosstube Aft

85318
D407-667-205

Page 1
6

Start Date: 05/06/2012

Required Date: 19/06/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:
IPP Rev:C 05.09.02 Add holes for compatibility with Bell SkidtubesKJ/JLM
IPP Rev:D Added Magnobond,Rubber Cushion & Clamps 07-02-19
JLM

****CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR GREATER****
IPP Rev:E 08-05-22 add comment in seq. 6 and QC15 and QC5 DD verified by:EC
IPP Rev:F 08-06-12 add comment in seq. 24 DD verified by:EC
IPP Rev:G 08-08-19 revE as per dwg DD verified by:EC
IPP Rev H 09.01.06 ECN 08-562 EC verified by:DD IPP Rev:I 10.04.07 revise route seq. in bom DD verified by:JLM IPP Rev J 11.04.26 removed abrasion strip ecn 11-551 EC verified by:DD
IPP REV:K
11.10.03 DEO D407-667-245-F-2 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D407-667-205TRN		Manufactured	No			110	Each	0.0000	1	1			
D407-667-205TRN							B 83 805		**		SAP	12.07.17	
Crosstube Turning Detail													
AN960JD516	NAS1149D0563J	Purchased	No			230	Each	0.0000	18	18			
AN960.ID516									**		M119546	12.07.17	
Washer													
D2873-043		Manufactured	No			230	Each	40.0000	2	2			
D2873-043									**		A8	12-7-25	
Nut Plate Assembly													

Location	Loc Qty	Loc Code
LG052	40	
72644	2	
82949	38	(2)

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order:	DISPOSITION				AGAINST DEPARTMENT/PROCESS				
Part No.:	Rework	Skid-tube	Crosstube	Prod. Eng. Coor.	Engineering				
NCR No.:	Scrap	Machining	Small Fab	Rec/Store/Packaging	Quality				
	Use-as-is	Thermoforming	Finishing	Supplier					
	Work Order Update	Large Fab	Composite	Other					

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General		
Bending Passes Below Min	Breaking	Burrs	Maintenance	Set-up
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled	Supplier
Cracks	Size/Length	Cut Too Short	Off-Set	Temperature/Cure
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread	Weld
Inspection Strip in Tube	Threading	Finish	Out of Calibration	Wrong Stock Pulled
Other	Wrong	Inspection Incomplete	Out of Sequence	
Positioned Wrong		Inspection Unqualified	Outside Dimensions	
Ripples on Inner Bend		Instructions Incomplete/Unclear	Over/Under tolerance	
Torque Waves in Extrusion		Jigs/Fixtures/Tooling	Part Lost	
Turning Sequence		Kit Incorrect	Part Moved	
Wave/Twist in Tube		Kit Missing	Raw Material	
	Drill Holes			Other
	Misaligned			
	Ovalized			
	Over/Undersized			
	Too Many			

Picklist Print

June-05-12 3:37:15 PM

Page 2

Work Order ID: 85318

85318

Parent Item: D407-667-205

D407-667-205

Parent Item Name: Crosstube Aft

Start Date: 05/06/2012

Required Date: 19/06/2012

Start Qty: 1.00

Required Qty: 1.00

D2873-045

Manufactured No

230

Each

33.0000

2

2

**

Ap 12-7-25

D2873-045

Nut Plate Assembly

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG052	33	
82947	33	

D2894-1

Manufactured No

230

Each

7.0000

1

1

**

Ap 12-07-27

D2894-1

2.750 Support

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG052	7	
75212	1	
82007	6	

D3190-1

Manufactured No

230

Each

41.0000

2

2

**

Ap 12-7-28

D3190-1

Chafing Shield

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG053	23	
75947	23	
LG055	18	
72576	18	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: Date:

QA Closed: Date:

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION		AGAINST DEPARTMENT/PROCESS					
				Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Other <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/>			
Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector	
Doc/Data <input type="checkbox"/>	Equip/Tooling <input type="checkbox"/>										
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Offset/Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unauthorized <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending Passes Below Min <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimp at Bending <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Other <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Ripples on Inner Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				Hardware <input type="checkbox"/> Breaking <input type="checkbox"/> Missing <input type="checkbox"/> Size/Length <input type="checkbox"/> Spinning <input type="checkbox"/> Threading <input type="checkbox"/> Wrong		General <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Documentation/Data <input type="checkbox"/> Finish <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Inspection Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Jigs/Fixtures/Tooling <input type="checkbox"/> Kit Incorrect <input type="checkbox"/> Kit Missing		<input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Off-Set <input type="checkbox"/> Orientation Misread <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Lost <input type="checkbox"/> Part Moved <input type="checkbox"/> Raw Material			<input type="checkbox"/> Set-up <input type="checkbox"/> Supplier <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Picklist Print

June-05-12 3:37:15 PM

Page 3

Work Order ID: 85318

85318
D407-667-205

Parent Item: D407-667-205

Parent Item Name: Crosstube Aft

Start Date: 05/06/2012

Required Date: 19/06/2012

Start Qty: 1.00

Required Qty: 1.00

D3595-063-450

Manufactured No

230

Each

179.8095

2

2

**

W 12-07-27

D3595-063-450

RUBBER CUSHION

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	60	
82511	60	
LG051	109.7	
80161	1.7	
<u>84715</u>	108	
MAT052	10.109474	
67353	2	
68893	6	
70113	0.56	
71354	0.2	
74113	0.349474	
75597	1	

MS20601-AD4W8

Purchased No

230

Each

144.0000

14

14

**

Al 12-7-25

MS20601-AD4W8

RIVET

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG051	33	
121017	33	
ST314	100	
<u>121827</u>	100	
ST322	11	
121255	11	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order:	DISPOSITION			AGAINST DEPARTMENT/PROCESS					
Part No.	Rework	<input type="checkbox"/>	Skid-tube	<input type="checkbox"/>	Crosstube	<input type="checkbox"/>	Prod. Eng. Coor.	<input type="checkbox"/>	Engineering
NCR No.	Scrap	<input type="checkbox"/>	Machining	<input type="checkbox"/>	Small Fab	<input type="checkbox"/>	Rec/Store/Packaging	<input type="checkbox"/>	Quality
	Use-as-is	<input type="checkbox"/>	Thermoforming	<input type="checkbox"/>	Finishing	<input type="checkbox"/>	Supplier	<input type="checkbox"/>	
	Work Order Update	<input type="checkbox"/>	Large Fab	<input type="checkbox"/>	Composite	<input type="checkbox"/>	Other	<input type="checkbox"/>	

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
<input type="checkbox"/> Bending Passes Below Min	<input type="checkbox"/> Breaking	<input type="checkbox"/> Burrs	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> Missing	<input type="checkbox"/> Contamination	<input type="checkbox"/> Set-up
<input type="checkbox"/> Cracks	<input type="checkbox"/> Size/Length	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Supplier
<input type="checkbox"/> Crushed/Crimp at Bending	<input type="checkbox"/> Spinning	<input type="checkbox"/> Documentation/Data	<input type="checkbox"/> Temperature/Cure
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Threading	<input type="checkbox"/> Finish	<input type="checkbox"/> Weld
<input type="checkbox"/> Other	<input type="checkbox"/> Wrong	<input type="checkbox"/> Inspection Incomplete	<input type="checkbox"/> Wrong Stock Pulled
<input type="checkbox"/> Positioned Wrong		<input type="checkbox"/> Inspection Unqualified	<input type="checkbox"/> Other
<input type="checkbox"/> Ripples on Inner Bend		<input type="checkbox"/> Instructions Incomplete/Unclear	
<input type="checkbox"/> Torque Waves in Extrusion		<input type="checkbox"/> Jigs/Fixtures/Tooling	
<input type="checkbox"/> Turning Sequence		<input type="checkbox"/> Kit Incorrect	
<input type="checkbox"/> Wave/Twist in Tube		<input type="checkbox"/> Kit Missing	
	Drill Holes		
	<input type="checkbox"/> Misaligned		
	<input type="checkbox"/> Ovalized		
	<input type="checkbox"/> Over/Undersized		
	<input type="checkbox"/> Too Many		

Picklist Print

June-05-12 3:37:15 PM

Page 4

Work Order ID: 85318

Parent Item: D407-667-205

Parent Item Name: Crosstube Aft

85318
D407-667-205

Start Date: 05/06/2012

Required Date: 19/06/2012

Start Qty: 1.00

Required Qty: 1.00

MS21920-22

Purchased

No

230

Each

48.0000

4

4

**

AD 12-7-28

MS21920-22

Clamp(per MIL-DTL-8783C)

Location	Loc Qty	Loc Code
LG	1	
119545	1	
LG050	47	
116207	7	
117506	1	
118186	8	
120631	31	

MS21920-25

Purchased

No

230

Each

123.0000

2

2

**

W 12.07.27

MS21920-25

Clamp(per MIL-DTL-8783C)

Location	Loc Qty	Loc Code
LG050	75	
116264	2	
117998	4	
118142	4	
119339	2	
119746	2	
120475	7	
120920	54	
LG051	48	
121583	48	

B# 122204

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order:			DISPOSITION		AGAINST DEPARTMENT/PROCESS					
			Rework <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Engineering <input type="checkbox"/>			
			Scrap <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Quality <input type="checkbox"/>			
			Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Supplier <input type="checkbox"/>				
			Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Other <input type="checkbox"/>				
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector	
Doc/Data										
Equip/Tooling										
Operator										
Material										
Offset/Setup										
Other										
Process										
Supplier										
Training										
Unauthorized										
FAULT CATEGORY										
Landing Gear	Hardware			General						
	Bending Passes Below Min	<input type="checkbox"/> Breaking	<input type="checkbox"/> Burrs	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Set-up					
	Centre Not Concentric to O/S	<input type="checkbox"/> Missing	<input type="checkbox"/> Contamination	<input type="checkbox"/> Mislabeled	<input type="checkbox"/> Supplier					
	Cracks	<input type="checkbox"/> Size/Length	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Off-Set	<input type="checkbox"/> Temperature/Cure					
	Crushed/Crimp at Bending	<input type="checkbox"/> Spinning	<input type="checkbox"/> Documentation/Data	<input type="checkbox"/> Orientation Misread	<input type="checkbox"/> Weld					
	Inspection Strip in Tube	<input type="checkbox"/> Threading	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Calibration	<input type="checkbox"/> Wrong Stock Pulled					
	Other	<input type="checkbox"/> Wrong	<input type="checkbox"/> Inspection Incomplete	<input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Other					
	Positioned Wrong	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Inspection Unqualified	<input type="checkbox"/> Outside Dimensions						
	Ripples on Inner Bend	<input type="checkbox"/> Misaligned	<input type="checkbox"/> Instructions Incomplete/Unclear	<input type="checkbox"/> Over/Under tolerance						
	Torque Waves in Extrusion	<input type="checkbox"/> Ovalized	<input type="checkbox"/> Jigs/Fixtures/Tooling	<input type="checkbox"/> Part Lost						
Turning Sequence	<input type="checkbox"/> Over/Undersized	<input type="checkbox"/> Kit Incorrect	<input type="checkbox"/> Part Moved							
Wave/Twist in Tube	<input type="checkbox"/> Too Many	<input type="checkbox"/> Kit Missing	<input type="checkbox"/> Raw Material							

Picklist Print

June-05-12 3:37:15 PM

Page 5

Work Order ID: 85318

Parent Item: D407-667-205

Parent Item Name: Crosstube Aft

85318
D407-667-205

Start Date: 05/06/2012

Required Date: 19/06/2012

Start Qty: 1.00

Required Qty: 1.00

AN5-10A

Purchased No 250 Each 215.0000

10 10

**

M/22/15/

Location	Loc Qty	Loc Code
ST337	215	
118191	80	
121181	35	
121243	100	

AN5-32A

Purchased No 250 Each 245.0000

4 4

**

L

Location	Loc Qty	Loc Code
ST339	145	
119862	50	
120423	75	
120910	20	
ST340	100	
121541	100	

AN5-34A

Purchased No 250 Each 64.0000

4 4

**

L 12/8/15/01

Location	Loc Qty	Loc Code
339	25	
121181	25	
ST339	39	
120422	39	

M/20/15/22

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____	DISPOSITION	AGAINST DEPARTMENT/PROCESS					
Part No. _____	Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Prod. Eng. Coor. Rec/Store/Packaging Supplier Other	Engineering Quality		
NCR No. _____							

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Offset/Setup									
Other									
Process									
Supplier									
Training									
Unauthorized									

FAULT CATEGORY

Landing Gear	Hardware	General	
Bending Passes Below Min	Breaking	Burrs	Maintenance
Centre Not Concentric to O/S	Missing	Contamination	Mislabeled
Cracks	Size/Length	Cut Too Short	Off-Set
Crushed/Crimp at Bending	Spinning	Documentation/Data	Orientation Misread
Inspection Strip in Tube	Threading	Finish	Out of Calibration
Other	Wrong	Inspection Incomplete	Out of Sequence
Positioned Wrong		Inspection Unqualified	Outside Dimensions
Ripples on Inner Bend	Drill Holes	Instructions Incomplete/Unclear	Over/Under tolerance
Torque Waves in Extrusion	Misaligned	Jigs/Fixtures/Tooling	Part Lost
Turning Sequence	Ovalized	Kit Incorrect	Part Moved
Wave/Twist in Tube	Over/Undersized	Kit Missing	Raw Material
	Too Many		Set-up
			Supplier
			Temperature/Cure
			Weld
			Wrong Stock Pulled
			Other

Picklist Print

June-05-12 3:37:15 PM

Page 6

Work Order ID: 85318

Parent Item: D407-667-205

Parent Item Name: Crosstube Aft

85318
D407-667-205

Start Date: 05/06/2012

Start Qty: 1.00

Required Date: 19/06/2012

Required Qty: 1.00

MS210421LS

~~MS2104215*~~
Nut

Purchased No 250 Each 1,409.000

4 4

**

12/8/07

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
300	500	
121652	500	
ST300	909	
108827	8	
116105	5	
116548	43	
117611	18	
119109	827	119109
17651	8	

NCR: Yes / No

DQA: _____ Date: _____

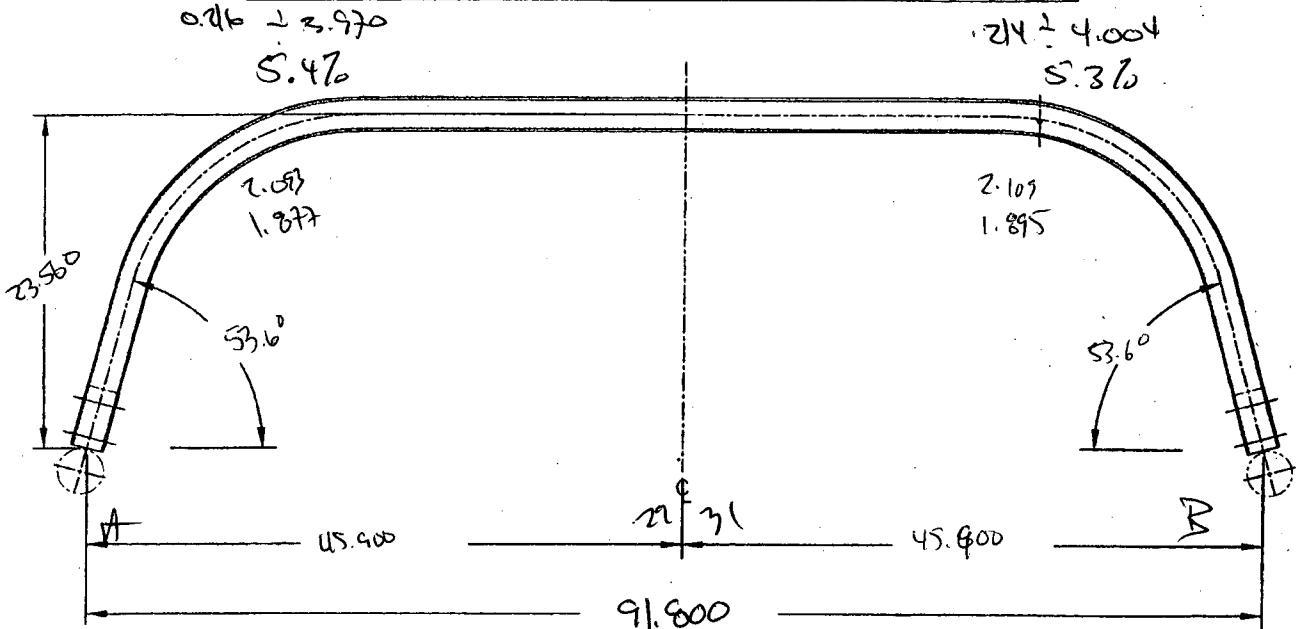
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order:			DISPOSITION			AGAINST DEPARTMENT/PROCESS							
			Rework <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Engineering Quality <input type="checkbox"/>						
Part No. _____			Scrap <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>							
NCR No. _____			Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Supplier <input type="checkbox"/>							
Work Order Update <input type="checkbox"/>			Large Fab <input type="checkbox"/>			Composite <input type="checkbox"/>							
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance		Initial Chief Eng	Action Description		Sign & Date	Verification	QC Inspector		
Doc/Data													
Equip/Tooling													
Operator													
Material													
Offset/Setup													
Other													
Process													
Supplier													
Training													
Unauthorized													
FAULT CATEGORY													
Landing Gear <input type="checkbox"/> Bending Passes Below Min <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimp at Bending <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Other <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Ripples on Inner Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				Hardware <input type="checkbox"/> Breaking <input type="checkbox"/> Missing <input type="checkbox"/> Size/Length <input type="checkbox"/> Spinning <input type="checkbox"/> Threading <input type="checkbox"/> Wrong		General <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Documentation/Data <input type="checkbox"/> Finish <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Inspection Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Jigs/Fixtures/Tooling <input type="checkbox"/> Kit Incorrect <input type="checkbox"/> Kit Missing		<input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Off-Set <input type="checkbox"/> Orientation Misread <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Lost <input type="checkbox"/> Part Moved <input type="checkbox"/> Raw Material				<input type="checkbox"/> Set-up <input type="checkbox"/> Supplier <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled	
												<input type="checkbox"/> Other	

DART AEROSPACE LTD	Work Order:	85318
Description: Crosstube High Aft (407)	Part Number:	D407-667-205
Inspection Dwg: D407-667-245 Rev: F		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	45.79	46.05
Angle	54	56
Total Span	91.58	92.100



Comments
Size A = 5.470 crwhi @ 29 passes
Size B = 5.370 crwhi @ 31 passes
Acceptable GP 12/7/17 DS1042

QC15 Inspection
Date (12/7/17)

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.22	Dwg Rev updated	KJ	
C	11.08.22	Dimensions updated	KJ	
D	11.09.30	Dimensions updated	KJ	RE

Item	QTY	PART NUMBER	DESCRIPTION
1	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
10	4	MS21920-22	CLAMP
11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91± 0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 27.7 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- 16) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- 17) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

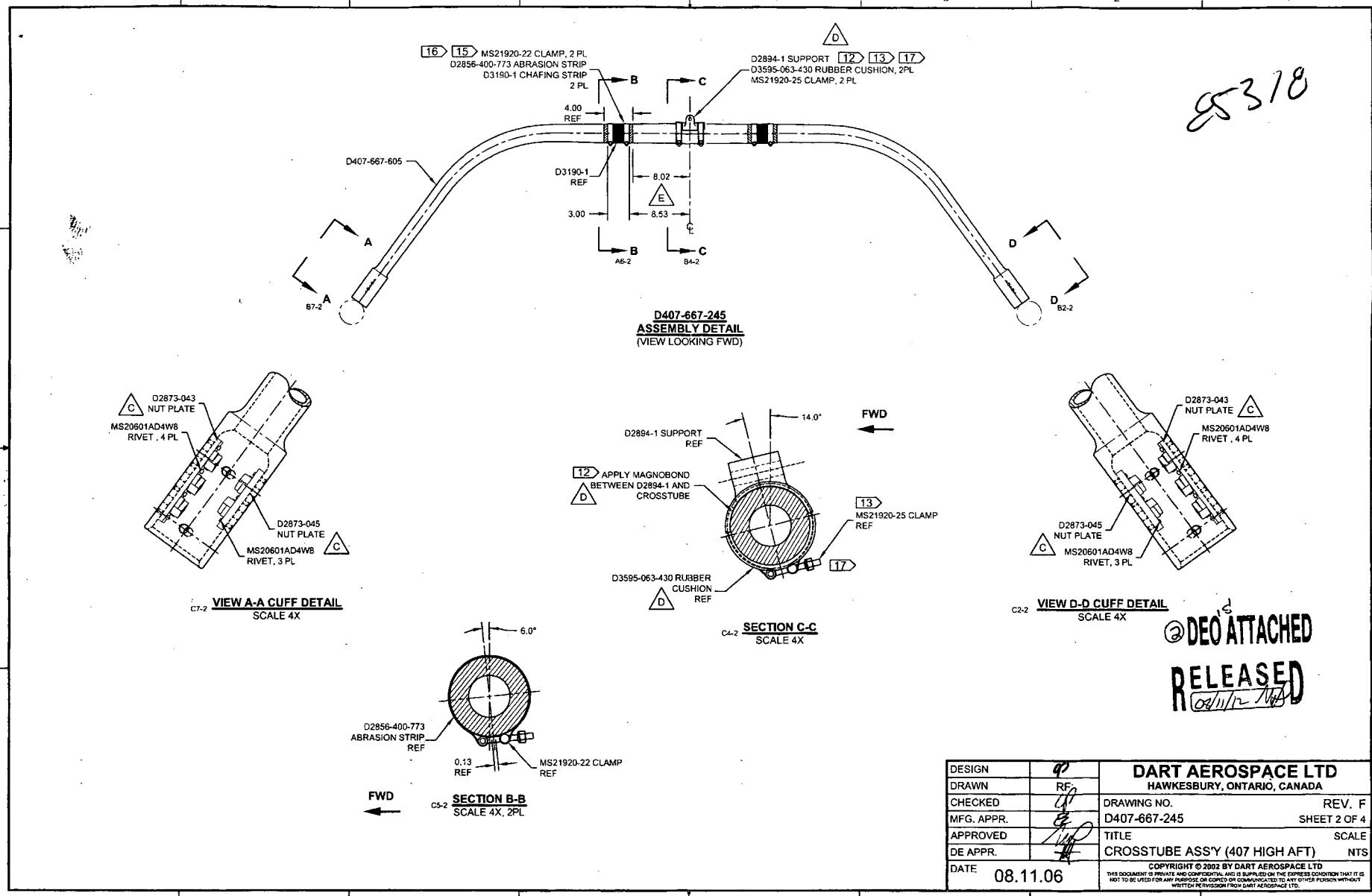
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

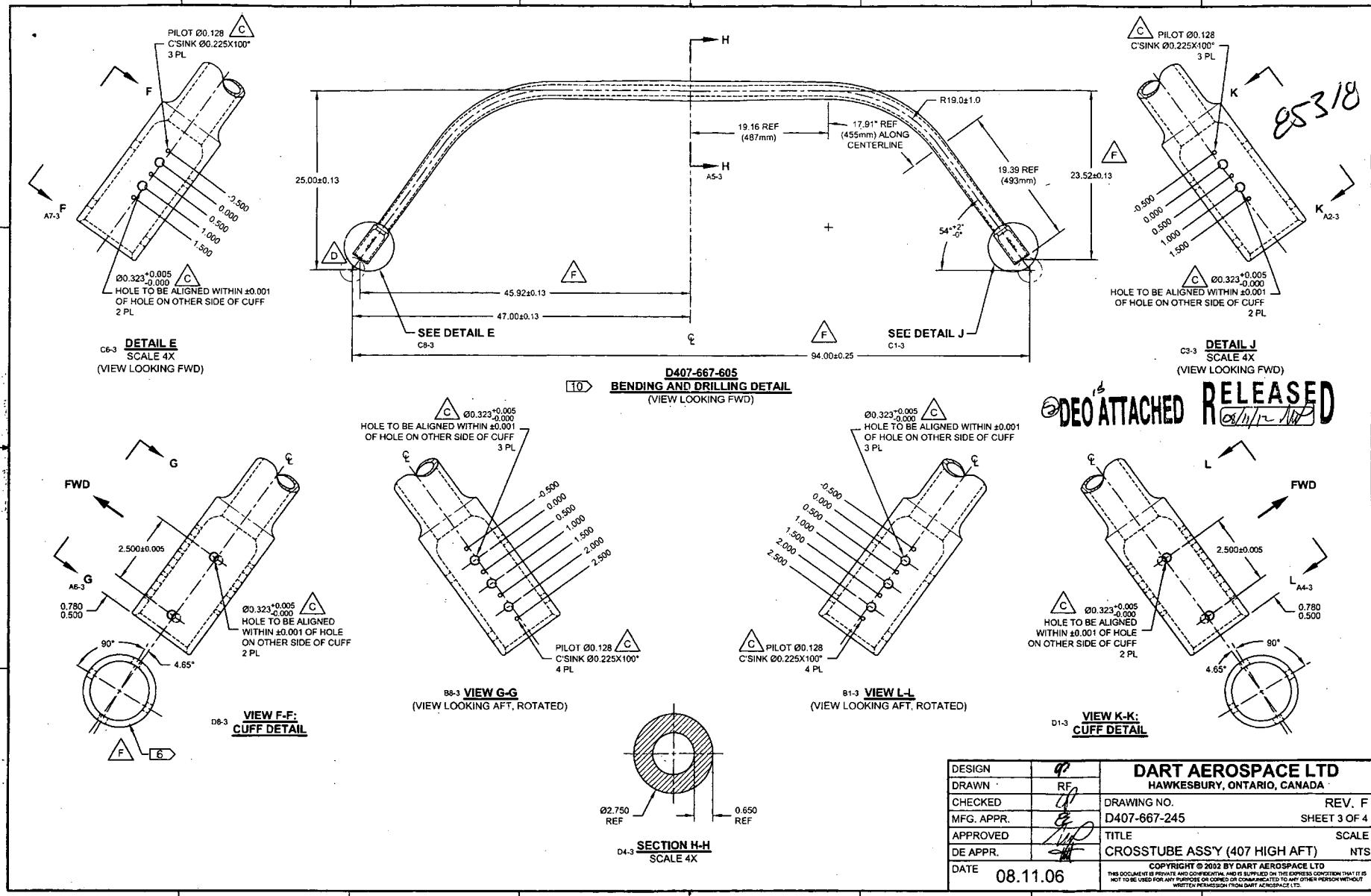
NO. ES318 MLJ
12/06/05

② DEO ATTACHED

RELEASED
08/11/2006

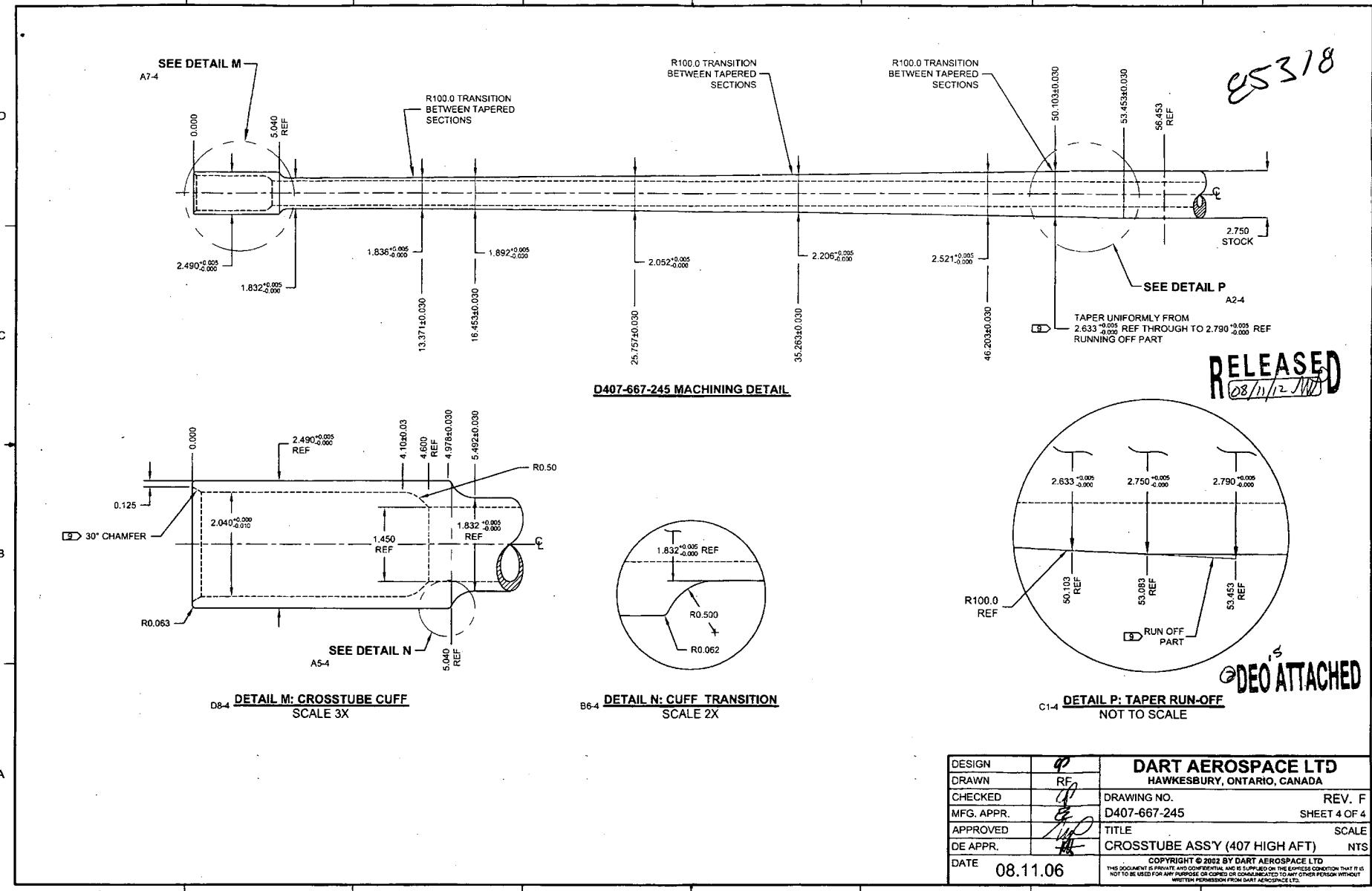
F	REFORMAT NOTES TO NEW STANDARDS (ZN 88-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.80 (ZN D5-2); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND ECN#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>RF</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<u>RF</u>	DRAWING NO. <u>D407-667-245</u>	
CHECKED	<u>JP</u>	REV. F	
MFG. APPR.	<u>EP</u>	SHEET 1 OF 4	
APPROVED	<u>EP</u>	TITLE <u>CROSSTUBE ASSY (407 HIGH AFT)</u> NTS	
DE APPR.	<u>EP</u>	SCALE	
DATE	<u>08.11.06</u>	COPYRIGHT © 2002 BY DART AEROSPACE LTD. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	





DESIGN	97	DART AEROSPACE LTD
DRAWN	RF	HAWKSLEY, ONTARIO, CANADA
CHECKED	JP	REV. F
MFG. APPR.	G	DRAWING NO.
APPROVED	SJ	D407-667-245
DE APPR.	SH	TITLE
DATE	08.11.06	SCALE
		CROSSTUBE ASSY (407 HIGH AFT) NTS

COPYRIGHT © 2002 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
WRITTEN PERMISSION FROM DART AEROSPACE LTD.



DRAWING NO. D407-667-245	TITLE CROSSTUBE ASSY (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D407-667-245-F-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN <i>b</i>	CHECKED <i>RP</i>	MFG. APPR. <i>E</i>	APPROVED <i>RP</i>	DE APPR. <i>H</i>		
DATE 11.04.08	DATE 11.04.12	DATE 11.04.12	DATE 11.04.12	DATE 11.04.12	DATE 11.04.12	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty	Part Number	Description
3	0	D2856-400-773	ABRASION STRIP

WAS:

3	2	D2856-400-773	ABRASION STRIP
---	---	---------------	----------------

NOTES 2 AND 15, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND
 PAINT OUTSIDE PER DART QSI 005 4.2
 REMOVE MASKING AND APPLY CLEAR COAT
- 15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3190-1
 CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL
 PROSEALED D3190-1 CHAFING SHIELDS ONTO CROSSTUBE BY APPLYING A THIN COAT
 OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 REF GAP ON BOTTOM SIDE OF
 CROSSTUBE PER QSI 035.

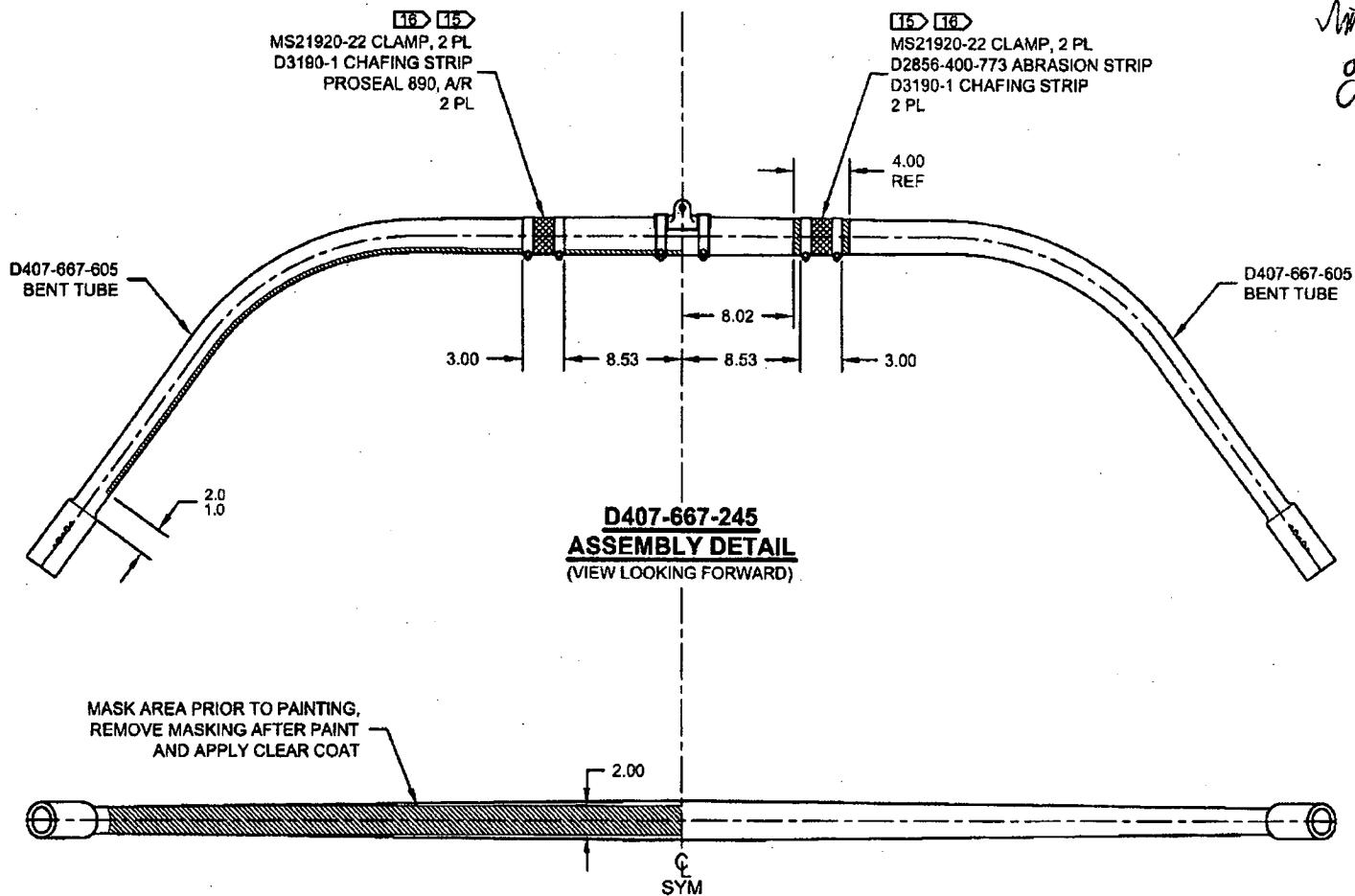
RELEASED
05318
RP 2011-04-18
RP

DRAWING NO. D407-667-245	TITLE CROSSTUBE ASSY (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-245-F-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN DATE 11.04.08	CHECKED DATE 11.04.11	MFG. APPR. <i>PC</i> DATE 11.04.12	APPROVED <i>W</i> DATE 11/04/12	DE APPR. <i>H</i> DATE 11.04.12			

RELEASED
2011-04-18
W
ES18

IS:

WAS:





DRAWING NO. D407-667-245	TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D407-667-245-F-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>qp</i>	CHECKED <i>AS</i>	MFG. APPR. <i>E</i>	APPROVED <i>MP</i>	DE APPR. <i>TH</i>		
DATE 11.09.07	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19		

PURPOSE:

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

95318

CHANGE:

IS:

Item	Qty -245	Part Number	Description
12	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
----	-----	----------------	---

NOTE 12 & 17, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

WAS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-09-29
MP





LIQUID PENETRANT TEST REPORT

P- 12202

CLIENT DATE Aug 2008 DATE July 14 2012
 ATTENTION ANDY / LINDA TIME AM PM
 ADDRESS 1270 ABERDEEN ST. ACUREN JOB NO. 188-12-C0285
HAWKESBURY, ON PO/WO NO. 17504 —
 PROJECT WORK LOCATION SANE
 ITEM(S) EXAMINED ACCEPTANCE STD. ASTM 1417/08I REV./DATE 08/2005
F.P. I. ON cross tube b68
- 11 - PCS

JOB DESCRIPTION PROCEDURE NO. LT002 REV./DATE 2008 TECHNIQUE NO. LT-~~1002~~ REV./DATE 2008
 PART NO. SEE RESULTS MATERIAL Aluminum — THICKNESS VARIOUS
 SCOPE A WET FLUORESCENT LIQUID PENETRANT EXAMINATION
WAS COMPLETED ON THE EXTERNAL SURFACE 100%

TEST DETAILS

METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>NANAFlux</u>		BLACK LIGHT S/N <u>16459</u>	<input type="checkbox"/> OUTPUT > 1000 μ W/cm ²	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	<u>2007</u>	MINIMUM DWELL TIME <u>45 10</u>	MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	<u>H2O</u>	MINIMUM DRY TIME <u>>10</u>	MIN.	OTHER <u>LABINO</u>	
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME <u>10</u>	MIN.	LIGHT METER S/N <u>1038866</u>	CAL DUE DATE <u>July 30</u> <u>2012</u>
DEVELOPER TYPE	<input type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		

TEST SURFACE

SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C / 20°F	<input type="checkbox"/> - 4°C / 20°F TO 10°C / 50°F		<input checked="" type="checkbox"/> 10°C / 50°F TO 52°C / 125°F	<input type="checkbox"/> > 52°C / 125°F

RESULTS-	<input checked="" type="checkbox"/> METRIC	<input type="checkbox"/> IMPERIAL	
			<u>CROSS BEV. O.</u>
4	"	<u>85877</u>	
1	"	<u>86693</u>	
1	"	<u>86692</u>	
1	"	<u>94764</u>	
1	"	<u>86932</u>	
1	"	<u>87329</u>	
1	"	<u>87328</u>	
1	"	<u>85315</u>	
1	"	<u>85316</u>	
1	"	<u>85317</u>	
1	"	<u>85318</u>	
			<u>12-07-23</u>

Scope of Services
 The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
 In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

CLIENT REPRESENTATIVE	<u>Andy Sheldon</u>	PRINT	<u>Sheldon</u>	SIGNATURE	DTR #	<u>E117389</u>
TECHNICIAN (SIGNATURE):	<u>MKE Sheldon</u>			REPORT		
NAME (PRINT):	<u>MKE Sheldon</u>	1 ST TECHNICIAN	<u>#</u>	2 ND TECHNICIAN	REVIEWED BY:	
CGSB LEVEL	<u>#</u>	SNT LEVEL	<u>#</u>	CGSB LEVEL	SNT LEVEL	NAME
CGSB REG. NO.	<u>6606</u>			CGSB REG. NO.		INITIALS

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
			X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
					X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10	*2	*2	*2		*2		D2891-1	SUPPORT
11				*2			D2892-1	SUPPORT
12					*1		D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4			D3595-063-450	RUBBER CUSHION
15					*2		D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18						*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4		AN5-32A	BOLT
20				4		*4	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	8	8	8	8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42		2					D2872-043	NUT PLATE
43		2					D2872-045	NUT PLATE
44	10		10				AN5-7A	BOLT
45		10		10	10	/ 10	AN5-10A	BOLT
46	4	10	4		4		AN5-30A	BOLT
47				4		/ 4	AN5-32A	BOLT
48			12				AN970-4	WASHER (OPTIONAL)
49		6					MS21042L5	NUT (OR MS21042-5)
50	10	12	10	10	10	/ 10	NAS1149C0563J	WASHER (OR AN960JD516)
60		1					D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245
ASSEMBLIES ABOVE

• COPYRIGHT © 2001 BY DART AEROSPACE LTD •
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED
OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Revision: D
Date: 11.05.01

Change Record

Part Number D407-667-205
Description 407 AFT CROSS TUBE

Page 1 of 1